

What is claimed is:

1. A method of making an erasable article comprising:
providing an electret film having first and second opposed major surfaces;
5 applying a polymerizable precursor composition to at least a portion of the first major surface;
polymerizing the polymerizable precursor composition to form a non-tacky crosslinked polymeric layer; and
exposing the electret film and non-tacky crosslinked polymeric layer to a
10 direct current corona discharge,
wherein the second major surface is free of adhesive material.
2. The method of claim 1, wherein the non-tacky crosslinked polymeric layer has a thickness in a range of from about 0.5 micrometers to about 20 micrometers.
- 15 3. The method of claim 1, wherein the non-tacky crosslinked polymeric layer has a thickness in a range of from about 1 micrometers to about 14 micrometers.
4. The method of claim 1, wherein the non-tacky crosslinked polymeric layer has a
20 thickness in a range of from about 1 micrometers to about 8 micrometers.
5. The method of claim 1, wherein the non-tacky crosslinked polymeric layer has a scratch hardness of at least about 4H.
- 25 6. The method of claim 1, wherein the non-tacky crosslinked polymeric layer has a scratch hardness of at least about 6H.
7. The method of claim 1, wherein the exposed non-tacky crosslinked polymeric layer surface has a roughness Ra of less than about 50 nanometers.
- 30 8. The method of claim 1, wherein the exposed non-tacky crosslinked polymeric layer surface has a roughness Ra of less than about 5 nanometers.

9. The method of claim 1, wherein polymerizable precursor composition comprises polymerizable material and curative.
- 5 10. The method of claim 1, wherein the polymerizable material comprises polyacrylate.
11. The method of claim 9, wherein the curative comprises photoinitiator.
- 10 12. The method of claim 1, wherein the electret film is opaque.
13. The method of claim 1, wherein the electret film is transparent or translucent.
14. The method of claim 1, wherein the electret film is a single layer.
- 15 15. The method of claim 1, wherein the electret film comprises at least one of polypropylene or a poly(ethylene-co-methacrylic acid) ionomer.
16. The method of claim 1, wherein the electret film comprises a zinc poly(ethylene-co-methacrylic acid) ionomer.
- 20 17. The method of claim 1, wherein the electret film further comprises phosphorescent pigment.
- 25 18. The method of claim 1, further comprising an ink layer disposed between the non-tacky crosslinked polymeric layer and the electret film.
19. The method of claim 18, wherein the ink layer further comprises phosphorescent pigment.
- 30 20. An erasable article comprising an electret film having first and second opposed major surfaces, and a non-tacky crosslinked polymeric layer comprising contacting the

first major surface, wherein the non-tacky crosslinked polymeric layer comprises colloidal silica, and wherein the second major surface is free of adhesive material.

21. An erasable article prepared according to the method of claim 1.

22. An erasable article comprising an electret film having first and second opposed major surfaces, and a non-tacky crosslinked polymeric layer comprising contacting the first major surface, wherein the second major surface is free of adhesive material, and wherein the erasable article forms a roll.

23. A stack comprising a plurality of erasable articles superimposed on each other, wherein each erasable article comprises:

an electret film having first and second opposed major surfaces, and a non-tacky crosslinked polymeric layer comprising contacting the first major surface, wherein the second major surface is free of adhesive material.

24. An erasable article comprising:

an electret film having first and second opposed major surfaces, and a non-tacky crosslinked polymeric layer contacting the first major surface, wherein the electret film and wherein the second major surface is free of adhesive material; and
a liner, wherein the liner contacts the second major surface.

25. The erasable article of claim 24, wherein the electret film is a single layer.

26. The erasable article of claim 24, wherein the substrate is selected from the group consisting of an architectural surface, an appliance, a window, and fabric.

27. A kit comprising:

an erasable article, wherein the erasable article comprises:

an electret film having a first major surface and a second major surface; and
a non-tacky crosslinked polymeric layer; and
at least one of a marker, eraser, or liquid cleaner.

28. The kit of claim 27, wherein the erasable article further comprises a liner.
29. The kit of claim 27, wherein the marker comprises an aqueous ink.
- 5 30. A dry erase article comprising:
- a flexible sheet having a first surface;
 - a first coating layer disposed on the first surface having a hardness upon curing of greater than about 500 MPa
 - 10 a writing surface disposed on the first coating layer suitable for receiving dry erase ink; and
 - wherein the first coating layer has minimal effect on the flexibility of the sheet.
- 15 31. The dry erase article of claim 30 wherein the ink receptive surface has a surface energy of at least about 25 mJ/m².
32. The dry erase article of claim 30 wherein the substrate and the secured first coating layer have a level of flexibility such that the substrate and the secured first coating layer
- 20 can be bent 180 degrees around a 6.4mm diameter mandrel without any visible signs of cracking or fracture of the substrate or the first coating layer or debonding of the first coating layer from the substrate.
33. The dry erase article of claim 30 wherein the substrate and the secured first coating
- 25 layer have a level of flexibility such that the substrate and the secured first coating layer can be bent 180 degrees around a 3.2 mm diameter mandrel without any visible signs of cracking or fracture of the substrate or the first coating layer or debonding of the first coating layer from the substrate.
- 30 34. The dry erase article of claim 30 wherein the sheet is selected from the group consisting of: polymeric film, extrusion coated paper, paper film laminate, coated paper, uncoated paper, and flexible metal.

35. The dry erase article of claim 30 wherein the first coating layer has a thickness of about 1 to about 15 micrometers.
- 5 36. The dry erase article of claim 30 wherein the first coating layer preferably has a thickness of about 1 to about 10 micrometers.
37. The dry erase article of claim 30 wherein the first coating layer further comprises:
at least one ethylenically unsaturated monomer; and
10 colloidal inorganic oxide particles.
38. The dry erase article of claim 37 wherein the colloidal inorganic oxide particles have an average particle diameter of less than about 1 micrometer.
- 15 39. The dry erase article of claim 37 wherein the first coating layer further comprises:
an ultraviolet photoinitiator.
40. The dry erase article of claim 30 wherein the first coating layer is curable by ultraviolet, electron beam, or thermal radiation.
- 20 41. The dry erase article of claim 30, and further comprising:
a second coating layer disposed between the first coating layer and the flexible sheet.
42. The dry erase article of claim 41, wherein the second coating layer includes printed
25 indicia.
43. The dry erase article of claim 30 wherein the flexible sheet includes a second surface and further comprising:
a second coating layer disposed on the second surface.
- 30 44. The dry erase article of claim 43 wherein the second coating layer is adhesive.

45. The dry erase article of claim 30 wherein the first coating layer has a hardness upon curing of greater than about 600 MPa.
- 5 46. The dry erase article of claim 30 wherein the first coating layer has a hardness upon curing of greater than about 700 MPa.
47. The dry erase article of claim 30 wherein the 60 degree gloss value of the writing surface is greater than 50 gloss units.
- 10 48. The dry erase article of claim 30 wherein the first coating layer has less and 10% by weight of additives.
49. A dry erase article comprising:
a substrate having a first surface and a second surface;
15 a curable hardcoat layer secured to the first surface, the hardcoat layer including at least one ethylenically unsaturated monomer, colloidal inorganic oxide particles; and
a writing surface disposed on the curable hardcoat layer suitable for receiving dry erase marker ink, the writing surface having a 60
20 degree gloss value of greater than 50 gloss units.
50. The dry erase article of claim 49 wherein the curable hardcoat composition comprises a curing initiator.
- 25 51. The dry erase article of claim 50 wherein the curing initiator comprises an ultraviolet photoinitiator.
52. The dry erase article of claim 49, wherein the colloidal inorganic oxide particles are silica particles.
- 30 53. The dry erase article of claim 49, wherein the colloidal silica particles have an average diameter of about 5 to about 1000 nm.

54. The dry erase article of claim 49, wherein the colloidal silica particles have an average diameter of about 5 to about 100 nm.

5 55. The dry erase article of claim 49, wherein the colloidal silica particles comprise from about 5 to about 50 weight percent of the coating composition excluding solvents.

56. The dry erase article of claim 49 wherein the curable hardcoat further comprises an organofunctional silane coupling agent.

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57. The dry erase article of claim 56 wherein said the organofunctional silane coupling agent comprises a hydrolyzable organofunctional silane.

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58. The dry erase article of claim 56, wherein the coupling agent comprises 3-(trimethoxysilyl)propylmethacrylate, 3-(triethoxysilyl)propylmethacrylate, or a mixture thereof.

59. The dry erase article of claim 56, wherein the coupling agent comprises about 1 to about 15 weight percent of the hardcoat composition.

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60. The dry erase article of claim 49 wherein the ethylenically unsaturated monomer comprises at least one trifunctional or higher functionality ethylenically unsaturated monomer or combinations thereof.

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61. The dry erase article of claim 49 wherein the ethylenically unsaturated monomer comprises at least one monofunctional or difunctional ethylenically unsaturated monomer or combinations thereof.

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62. The dry erase article of claim 61 wherein the monofunctional ethylenically unsaturated monomer comprises an amide containing compound.

63. The dry erase article of claim 49, wherein the monofunctional amide- containing compound is selected from the group consisting of N,N- disubstituted acetamides, N,N- disubstituted formamides, N,N-disubstituted acrylamides, N-substituted pyrrolidinones, N- substituted formamides, N- substituted caprolactams, and combinations thereof.

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64. The radiation curable hardcoat composition of claim 49, wherein the monofunctional or difunctional ethylenically unsaturated monomer comprises about 1 to about 80 weight percent of the hardcoat composition.

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65. The dry erase article of claim 49 wherein the trifunctional or higher functionality ethylenically unsaturated monomer is pentaerythritol triacrylate or pentaerythritol tetracrylate, the difunctional ethylenically unsaturated monomer is hexanediol diacrylate, the monofunctional ethylenically unsaturated monomer is N,N-dimethyl acrylamide, the organofunctional silane coupling agent is (meth)acryloxypropyl trimethoxysilane, and the colloidal inorganic oxide particles comprise silica.

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66. The dry erase article of claim 49, wherein the colloidal silica particles have an average diameter of about 5 to about 1000 nm.

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67. The dry erase article of claim 49, wherein the colloidal silica particles have an average diameter of about 5 to about 100 nm.

68. The dry erase article of claim 49 wherein the curable hardcoat layer is a coatable UV hardcoat solution at 100% solids.

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69. The dry erase article of claim 49 wherein the substrate is selected from the group consisting of: a polymeric sheet, polymeric film, extrusion coated paper, paper film laminate, coated paper, uncoated paper, metal film, and metal sheet.

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70. The dry erase article of claim 49 wherein the hardcoat layer has a thickness from about 1 micrometer to about 15 micrometers.

71. The dry erase article of claim 49 wherein the first coating layer preferably has a thickness of about 1 to about 10 micrometers.

72. The dry erase article of claim 49 wherein the writing surface has a surface energy of at least 25 mJ/m².

73. The dry erase article of claim 49 wherein the hardcoat layer has less than 10% by weight of additives.

74. A method for forming a dry erase article in a continuous process comprising:
applying a curable hardcoat coating to a streaming or moving web of a flexible substrate;
curing the coating at a curing station, wherein the cured coating had a hardness of 500 MPa or greater as measured by a nanoindenter; and
forming a writing surface on the hardcoat coating suitable for receiving dry erase ink.

75. The method of claim 74 wherein the substrate is selected from a group consisting of: a polymeric film, extrusion coated paper, paper film laminate, coated paper, uncoated paper, and flexible metal.

76. The method of claim 74 wherein the hardcoat coating has a thickness of from about 1 micrometer to about 15 micrometers

77. The dry erase article of claim 74 wherein the first coating layer preferably has a thickness of about 1 to about 10 micrometers.

78. The method of claim 74 wherein the hardcoat coating is comprised of at least one multifunctional acrylate monomer, and colloidal inorganic oxide particles.

79. The dry erase article of claim 78 wherein the hardcoat layer further comprises a curing initiator.

80. The dry erase article of claim 78 wherein the curing initiator is further comprised of a UV photoinitiator.
- 5 81. The method of claim 74 wherein after curing, the writing surface has a surface energy of at least 25 mJ/m².
82. The method of claim 74 wherein the step of curing the hardcoat coating further comprises:
- 10 emitting radiation at the hardcoat coating.
83. The method of claim 74 wherein the radiation is selected from the group consisting of: ultraviolet radiation, electron beam, and thermal radiation.
- 15 84. The method of claim 74 and further comprising:
drying the hardcoat coating on the flexible substrate.